**Printed Page:-04** **Subject Code:- AMICA0403**

**Roll. No:**

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**NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA**

**(An Autonomous Institute Affiliated to AKTU, Lucknow)**

**MCA (Integrated)**

**SEM: IV - THEORY EXAMINATION (2023 - 2024)**

**Subject: Software Engineering & Design**

**Time: 3 Hours** **Max. Marks: 100**

**General Instructions:**

**IMP:** *Verify that you have received the question paper with the correct course, code, branch etc.*

**1.** *This Question paper comprises of* **three Sections -A, B, & C.** *It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.*

**2.** *Maximum marks for each question are indicated on right -hand side of each question.*

**3.** *Illustrate your answers with neat sketches wherever necessary.*

**4.** *Assume suitable data if necessary.*

**5.** *Preferably, write the answers in sequential order.*

**6.** *No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.*

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**SECTION A** **20**

**1. Attempt all parts:-**

1-a. The spiral model was originally proposed by (CO1) 1

(a) IBM

(b) Royce

(c) Barry Boehm

(d) Pressman

1-b. Selection of a model is based on (CO1) 1

(a) Requirements

(b) Development team & Users

(c) Project type and associated risk

(d) All of the mentioned

1-c. Which is true about functional requirements. (CO2) 1

(a) A functional requirement is also called behavioral requirement

(b) A functional requirement includes development and operational requirements

(c) A functional requirement is a statement of how a software product must map program inputs to program outputs

(d) None of the mentioned

1-d. SRS stand for_____. (CO2) 1

(a) Special Requirement Specification

(b) Software Requirement Specification

(c) Software Requirement Speciality

(d) None of the mentioned

1-e. Who designs and implement database structures. (CO3) 1

(a) Programmers

(b) Project managers

(c) Technical writers

(d) Database administrators

1-f. Choose the incorrect statement in terms of Objects. (CO3) 1

(a) Objects can't manage themselves

(b) Objects are abstractions of real-world

(c) Objects encapsulate state and representation information

(d) All of the mentioned

1-g. White Box techniques are also classified as (CO4) 1

(a) Structural testing

(b) Design based testing

(c) Error guessing technique

(d) None of the mentioned

1-h. Level of testing is_____. (CO4) 1

(a) Unit Testing

(b) System Testing

(c) Integration Testing

(d) All of the mentioned

1-i. Quality Management in software engineering is also known as (CO5) 1

(a) SQA

(b) SQM

(c) SQI

(d) SQA and SQM

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1-j. Maintenance is classified into how many categories. (CO5) 1

(a) two

(b) three

(c) Four

(d) five

**2. Attempt all parts:-**

2.a. Explain the steps involved in the prototyping. (CO1) 2

2.b. Explain Software Quality Assurance. (CO2) 2

2.c. Explain the common activities in design process. (CO3) 2

2.d. Define Regression Testing. (CO4) 2

2.e. Explain the elements of planning approach. (CO5) 2

**SECTION B** **30**

**3. Answer any <u>five</u> of the following:-**

3-a. Discuss Spiral model with advantages and disadvantages. (CO1) 6

3-b. Explain different SDLC models in detail. (CO1) 6

3-c. Define a flow chart. How is the flow charting techniques useful for software development? (CO2) 6

3-d. Compare Data flow diagrams and ER diagrams with the help of suitable example. (CO2) 6

3.e. Define structured Chart. Explain with example. (CO3) 6

3.f. Explain the various types of system testing. (CO4) 6

3.g. Explain the importance of maintenance in SDLC in detail. (CO5) 6

**SECTION C** **50**

**4. Answer any <u>one</u> of the following:-**

4-a. Explain the design principle of software Engineering. (CO1) 10

4-b. Define software process in detail. (CO1) 10

**5. Answer any <u>one</u> of the following:-**

5-a. Define Static Code Analysis. (CO2) 10

5-b. Describe about types of Software Requirements. (CO2) 10

**6. Answer any <u>one</u> of the following:-**

6-a. Explain the following :(i) Control Hierarchy (ii) Structure Partitioning(iii) Flow Chart (CO3) 10

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6-b. Explain the following :(i) UML Diagram (ii) Use Case Diagram(iii) E-R Diagram (CO3) 10

**7. Answer any <u>one</u> of the following:-**

7-a. Explain the objective and principles of testing. Explain why testing is considered to be important part in software development. (CO4) 10

7-b. Explain the following: (i) Equivalence Partitioning (ii) Boundary value analysis (iii) Decision Table Testing (CO4) 10

**8. Answer any <u>one</u> of the following:-**

8-a. Explain why software maintenance is an expensive activity. (CO5) 10

8-b. Write short notes on :(i) Project Management (ii) CMM Level (iii) Reverse Engineering (CO5) 10

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